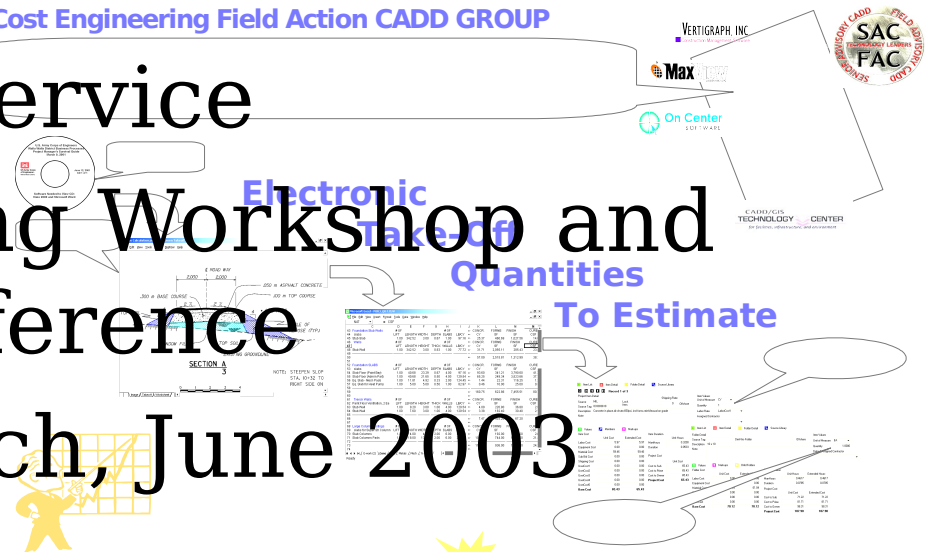
US Army Corps of Engineers®

4 June 2003, TRACK C, 2:30-3:30

Electronic Digital Takeoff

Tri-Service Cost Engineering Workshop and Conference

Virginia Beach, June 2003



Walla Walla District

COST ENGINEERING FOR CIVIL WORKS
AND
INTERAGENCY AND INTERNATIONAL SUPPORT
DIRECTORY OF EXPERTISE

US Army Corps of Engineers®

CFAC

Cost Engineering Field Action CADD Group

- Cost Engineers, CADD and GIS experts
- Enhance all Corps District's CADD usage
- Information
- Resources

US Army Corps of Engineers®

Technology Center – SAC

CADD/GIS TECHNOLOGY CENTER

for facilities, infrastructure, and environment

CADD and Geospatial Technologies

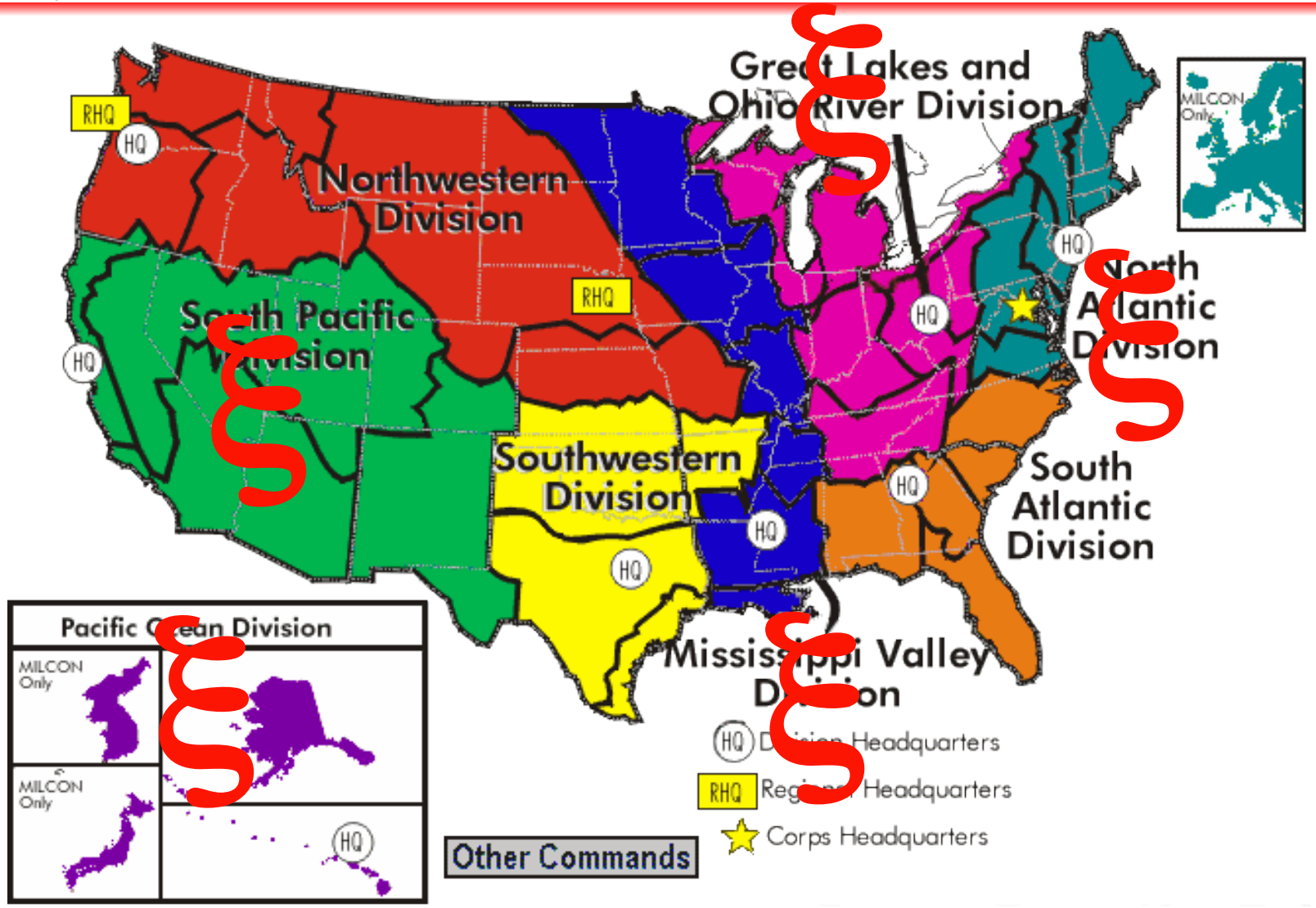
SENIOR ADVISORY CADD Group

- Engineering Division Chiefs
- Provide Leadership
- Vision

for the Corps' CADD program

US Army Corps of Engineers®

CFAC – Represented Corps Districts



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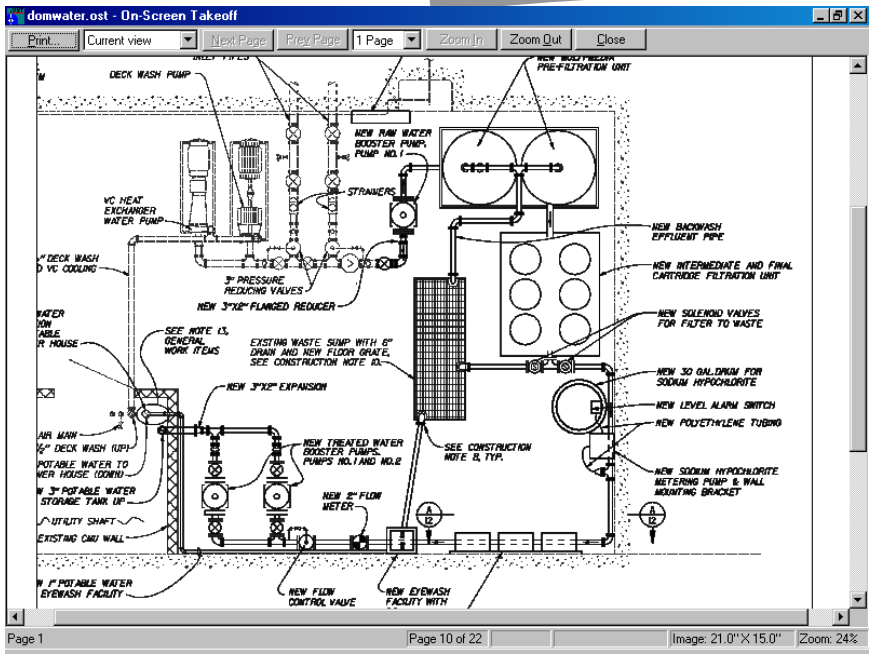
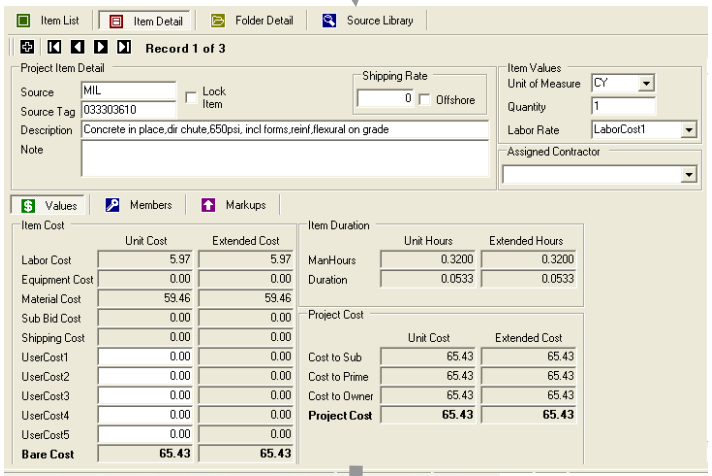
CADD to Cost


domwater.ost - On-Screen Takeoff
Print...
Current view
Next Page
Prev Page
1 Page
Zoom In
Zoom Out
Close
DECK WASH PUMP
NEW RAW WATER BOOSTER PUMP, PUMP NO.1
STRAINERS
VC HEAT EXCHANGER WATER PUMP
NEW BACKWASH EFFLUENT PIPE
NEW INTERMEDIATE AND FINAL CARTRIDGE FILTRATION UNIT
3" PRESSURE REDUCING VALVES
NEW 3"X2" FLANGED REDUCER
NEW SOLENOID VALVES FOR FILTER TO WASTE
SEE NOTE 13, GENERAL WORK ITEMS
EXISTING WASTE SUMP WITH 6" DRAIN AND NEW FLOOR GRATE, SEE CONSTRUCTION NOTE 10
NEW 3"X2" EXPANSION
NEW 30 GAL.DRUM FOR SODIUM HYPOCHLORITE
NEW LEVEL ALARM SWITCH
NEW POLYETHYLENE TUBING
NEW TREATED WATER BOOSTER PUMPS. PUMPS NO.1 AND NO.2
SEE CONSTRUCTION NOTE 13, TYP.
NEW SODIUM HYPOCHLORITE METERING PUMP & WALL MOUNTING BRACKET
NEW 2" FLOW METER
UTILITY SHAFT
NEW FLOW CONTROL VALVE
NEW EYEWASH FACILITY WITH
Page 1
Page 10 of 22
Image: 21.0" X 15.0"
Zoom: 24%



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Problematic Quantities in 2D CADD

02 – Remove 4 trees

03 – Chamfer all

05 – Callout – W8x15

09 – Room Surface Area

15 – Material List on the Drawing

16 – Conduit Runs

Break Lines

Place this item 4ft O.C for 40ft

Contractor to verify dimension

Contractor to design

Cost Engineering Field Action CADD GROUP

The Cost Engineering Field Action CADD Group (CFAC) is comprised of Cost Engineers and Estimators whose purpose is to enhance all Corps District's CADD usage.

RECENT PROJECT; *Electronic Quantity Take-Off Evaluation Report*

VERTIGRAPH, INC
Construction Management Software

MaxView CORPORATION

On Center SOFTWARE

SAC FAC — SENIOR ADVISORY CADD — FIELD ADVISORY CADD — TECHNOLOGY LEADERS

Technical Report

US Army Corps of Engineers

Evaluate Quantity Take-off for CADD Software Integration

Final Report

By Cost Field Activities CADD Group

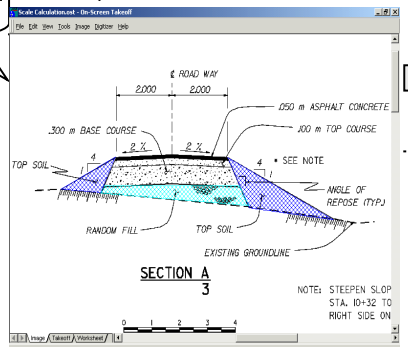
Julie Davin
David Brown, C.C.E.T.
Arthur Belenger, C.C.E.T., C.V.S.
Daniel Long, P.E., C.C.E.
Milton Schmidt, C.C.C.
Gareth Clausen

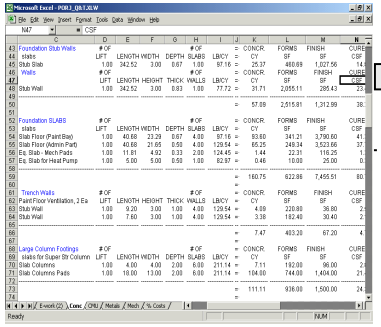
CADD/GIS TECHNOLOGY CENTER
for facilities, infrastructure, and environment

U.S. Army Corps of Engineers
Walla Walla District Business Processes
Project Manager's Survival Guide
March 9, 2001
Software Needed to View CD:
Visio 2000 and Microsoft Word

Government Electronic Bid Sets

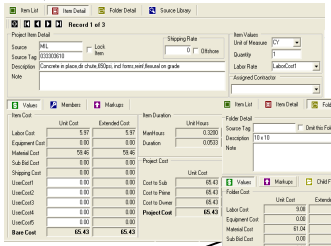
Electronic Drawing File Format (i.e. *.tif)





Electronic Take-Off Quantities To Estimate

Quantity Input to the Item Detail



Quantity Input to the Folder Detail

Saves Time

Time is $$

The Cost Field Activities CADD Group supports AEC CADD Standards for CADD-ESTIMATE integration.

New **Tri-Services Automated Cost Engineering System**

MII (the new M32 – MCACES for Windows 32 bit)

Replaces MCACES GOLD 530, Scheduled for release Fall of 2002

Ø ON-SCREEN TAKEOFF SOFTWARE is available from the Intergraph's IM-FCAD2 Government Contract

Ø Additional FAC information and a link to the Evaluation Report is at; http://CADD.wes.army.mil/

Authored by US Army Corps of Engineers ® Walla Walla District

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Quantity Take-Off Tools

Evaluate Quantity Take-off for CADD-COST Software Integration Report

US Army Corps of Engineers

By Cost Field Activities CADD Group

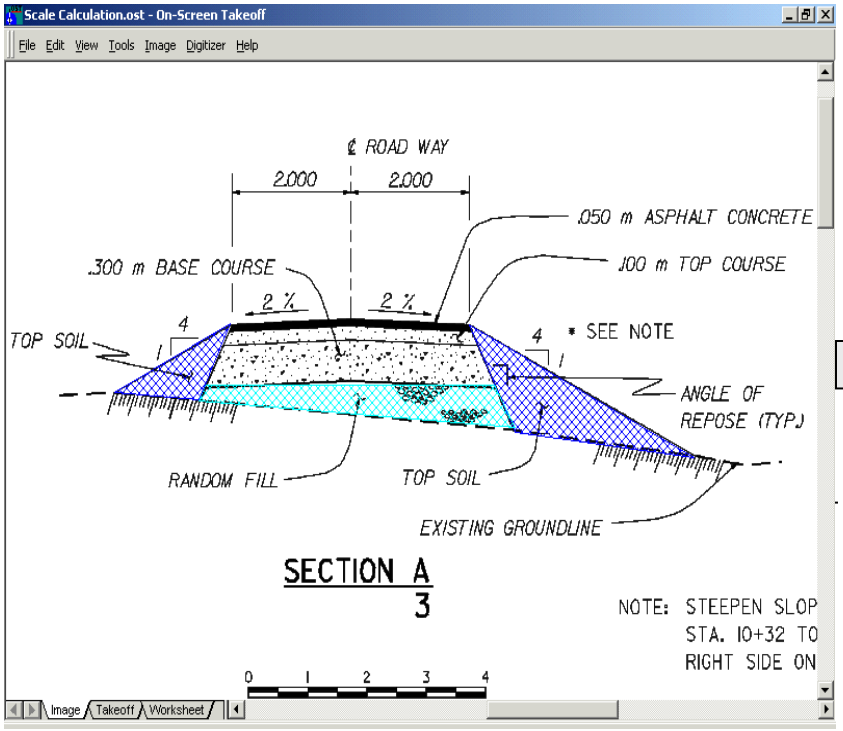
On Center SOFTWARE

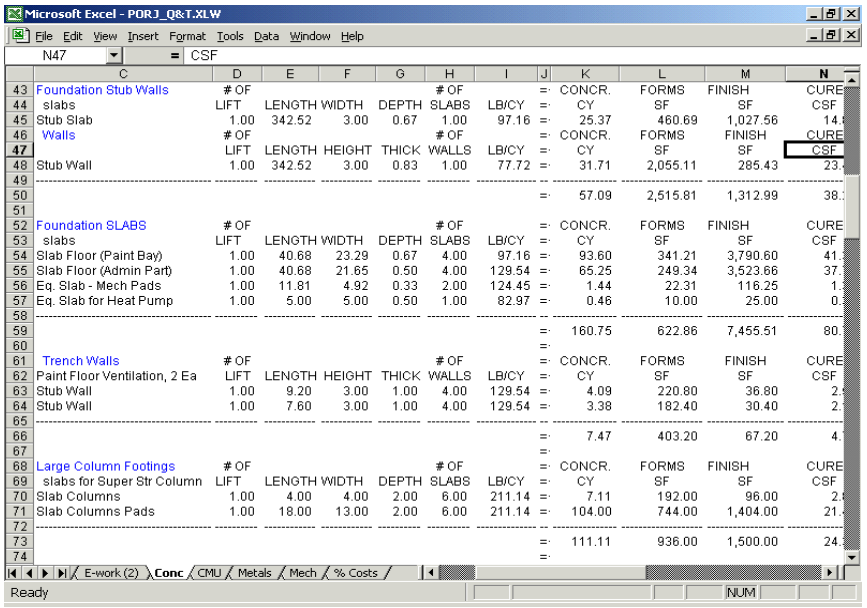
VERTIGRAPH, INC.
Construction Management Software

MaxView CORPORATION

US Army Corps of Engineers®

Drawing to Spreadsheet





	C	D	E	F	G	H	I	J	K	L	M	N
43	Foundation Stub Walls	# OF				# OF		=	CONCR.	FORMS	FINISH	CURE
44	slabs	LIFT	LENGTH	WIDTH	DEPTH	SLABS	LB/CY	=	CY	SF	SF	CSF
45	Stub Slab	1.00	342.52	3.00	0.67	1.00	97.16	=	25.37	460.69	1,027.56	14.
46	Walls	# OF				# OF		=	CONCR.	FORMS	FINISH	CURE
47		LIFT	LENGTH	HEIGHT	THICK	WALLS	LB/CY	=	CY	SF	SF	CSF
48	Stub Wall	1.00	342.52	3.00	0.83	1.00	77.72	=	31.71	2,055.11	285.43	23.
49												
50								=	57.09	2,515.81	1,312.99	38.
51												
52	Foundation SLABS	# OF				# OF		=	CONCR.	FORMS	FINISH	CURE
53	slabs	LIFT	LENGTH	WIDTH	DEPTH	SLABS	LB/CY	=	CY	SF	SF	CSF
54	Slab Floor (Paint Bay)	1.00	40.68	23.29	0.67	4.00	97.16	=	93.60	341.21	3,790.60	41.
55	Slab Floor (Admin Part)	1.00	40.68	21.65	0.50	4.00	129.54	=	65.25	249.34	3,523.66	37.
56	Eq. Slab - Mech Pads	1.00	11.81	4.92	0.33	2.00	124.45	=	1.44	22.31	116.25	1.
57	Eq. Slab for Heat Pump	1.00	5.00	5.00	0.50	1.00	82.97	=	0.46	10.00	25.00	0.
58												
59								=	160.75	622.86	7,455.51	80.
60								=				
61	Trench Walls	# OF				# OF		=	CONCR.	FORMS	FINISH	CURE
62	Paint Floor Ventilation, 2 Ea	LIFT	LENGTH	HEIGHT	THICK	WALLS	LB/CY	=	CY	SF	SF	CSF
63	Stub Wall	1.00	9.20	3.00	1.00	4.00	129.54	=	4.09	220.80	36.80	2.
64	Stub Wall	1.00	7.60	3.00	1.00	4.00	129.54	=	3.38	182.40	30.40	2.
65												
66								=	7.47	403.20	67.20	4.
67								=				
68	Large Column Footings	# OF				# OF		=	CONCR.	FORMS	FINISH	CURE
69	slabs for Super Str Column	LIFT	LENGTH	WIDTH	DEPTH	SLABS	LB/CY	=	CY	SF	SF	CSF
70	Slab Columns	1.00	4.00	4.00	2.00	6.00	211.14	=	7.11	192.00	96.00	2.
71	Slab Columns Pads	1.00	18.00	13.00	2.00	6.00	211.14	=	104.00	744.00	1,404.00	21.
72												
73								=	111.11	936.00	1,500.00	24.
74								=				

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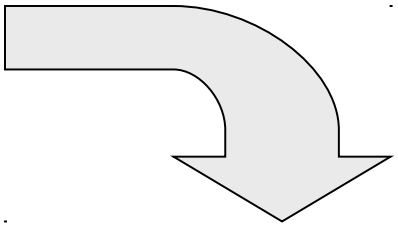
Quantity Input to MII



Item List | Item Detail | Folder Detail | Source Library

Record 1 of 3

Project Item Detail

Source	MIL
Source Tag	033303610
Description	Concrete in place,dir chute,650psi, incl forms,reinf,flexural on grade
Note	

Lock Item

Shipping Rate: 0 Offshore

Item Values

Unit of Measure	CY
Quantity	1
Labor Rate	LaborCost1

Assigned Contractor

Values | Members | Markups

Item Cost

	Unit Cost	Extended Cost
Labor Cost	5.97	5.97
Equipment Cost	0.00	0.00
Material Cost	59.46	59.46
Sub Bid Cost	0.00	0.00
Shipping Cost	0.00	0.00
UserCost1	0.00	0.00
UserCost2	0.00	0.00
UserCost3	0.00	0.00
UserCost4	0.00	0.00
UserCost5	0.00	0.00
Bare Cost	**65.43**	**65.43**

Item Duration

	Unit Hours
ManHours	0.3200
Duration	0.0533

Project Cost

	Unit Cost
Cost to Sub	65.43
Cost to Prime	65.43
Cost to Owner	65.43
Project Cost	**65.43**

Item List | Item Detail | Folder Detail | Source Library

Folder Detail

Source Tag	
Description	10 x 10
Note	

Omit this Folder | Offshore

Item Values

Unit of Measure	EA
Quantity	1.0000

Default Assigned Contractor

Values | Markups | Child Folders

Folder Cost

	Unit Cost	Extended Cost
Labor Cost	9.08	9.08
Equipment Cost	0.00	0.00
Material Cost	61.04	61.04
Sub Bid Cost	0.00	0.00
Shipping Cost	0.00	0.00
User Cost	0.00	0.00
Bare Cost	**70.12**	**70.12**

Folder Duration

	Unit Hours	Extended Hours
ManHours	0.4617	0.4617
Duration	0.0785	0.0785

Project Cost

	Unit Cost	Extended Cost
Cost to Sub	71.22	71.22
Cost to Prime	81.71	81.71
Cost to Owner	98.31	98.31
Project Cost	**107.90**	**107.90**

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Take-Off Tools – Use & Possibilities

- Budget Estimates
- Bid Estimates
- Reviews (check quantities)
- Develop Quantities for Concept Designs

Note: (Request / Demand electronic drawings for all estimates)

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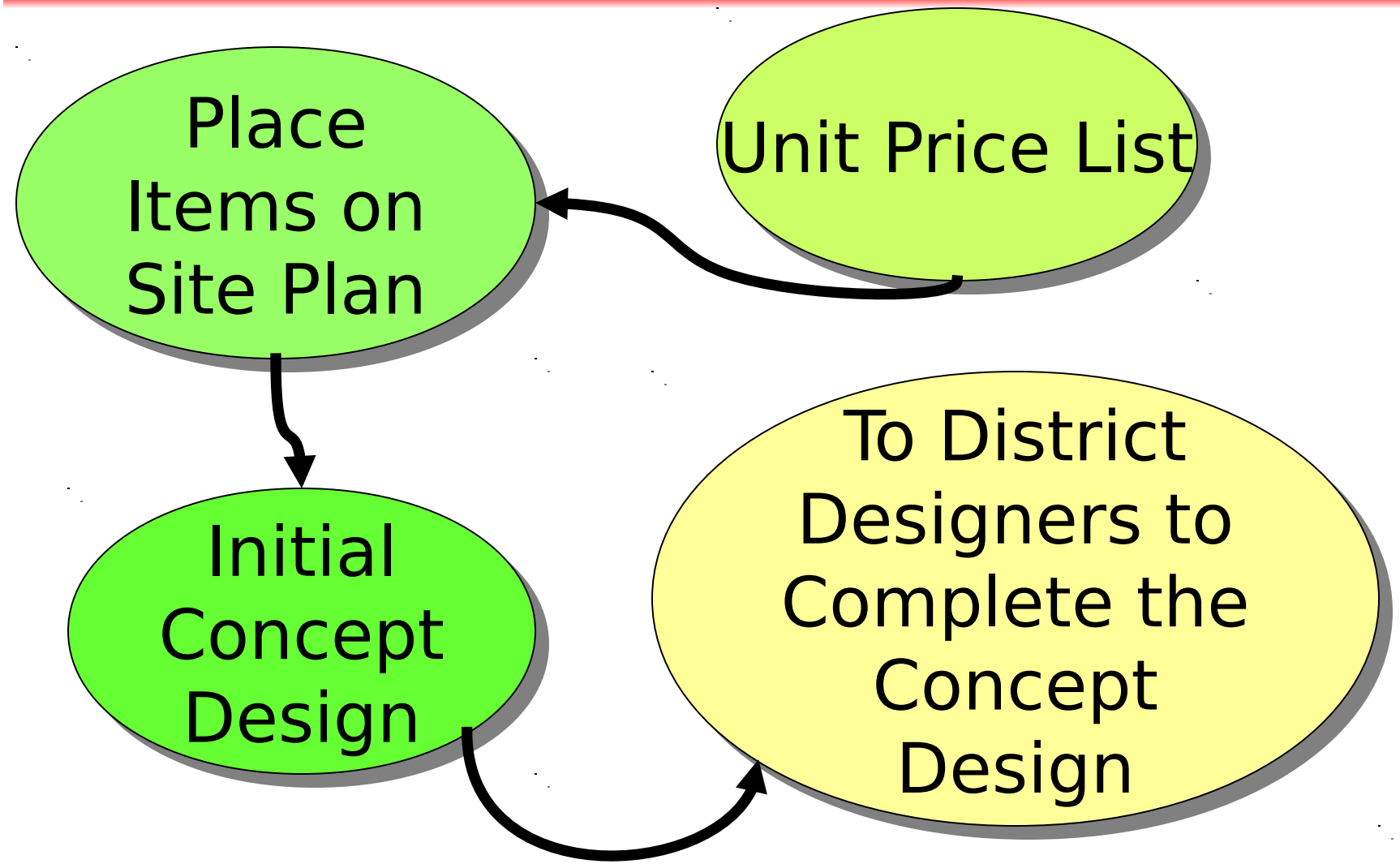
Take-Off Tools - Concept to Design



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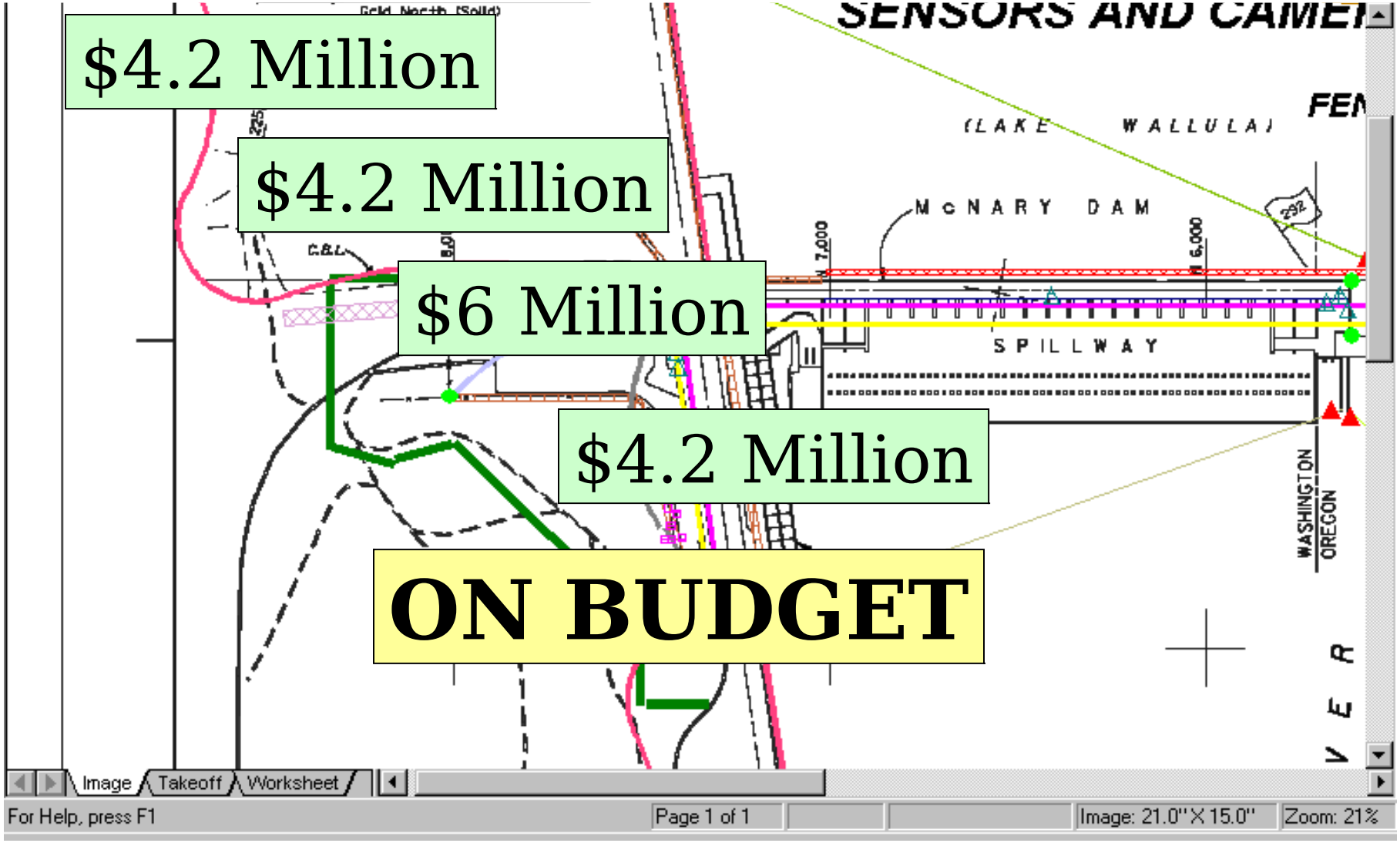
Take-Off Tools - Concept to Design



Electronic Digital Takeoff

Tri-Service

Cost Engineering Workshop and Conference

Virginia Beach, June 2003